Wild parrots quickly learn to eat new foods by copying their friends

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A sulfur-crested cockatoo eating a red-colored almond as part of the experiment. Credit: Julia Penndorf (CC-BY 4.0, creativecommons.org/licenses/by/4.0/)

Wild parrots learn whether new types of food are safe to eat by observing other members of their social group, allowing dietary

knowledge to spread rapidly through the community, according to a study by Julia Penndorf at the Australian National University and colleagues, published in *PLOS Biology*.

When an animal encounters a new food, it faces a dilemma—eat it and risk poisoning, or leave it and miss out on a useful resource? One solution to this dilemma is to observe and imitate the behavior of other individuals in the group—known as "social learning."

Social learning about novel food has been documented in laboratory studies, but little is known about if and how this phenomenon occurs in wild animals. To investigate, researchers studied the behavior of over 700 wild sulfur-crested cockatoos (Cacatua galerita) in central Sydney.

Training birds to try strange food

First, they trained four of the birds to eat unshelled almonds that had been painted either blue or red—a food that they were unlikely to have encountered before. Next, they placed feeders near five roosting sites and recorded which birds ate the painted nuts. Untrained birds initially avoided them, but in roosts where a trained bird was present, other birds quickly learned the painted almonds were safe.

After 10 days, 349 birds had learned to eat the novel food. Statistical analysis confirmed that this new dietary knowledge spread through the community almost entirely by social learning.

A sulfur-crested cockatoo perching on a camera, watching the experiment being conducted. Credit: Julia Penndorf (CC-BY 4.0, creativecommons.org/licenses/by/4.0/)

Who learns from whom in flocks

However, there were differences in social learning between age groups and sexes. For example, male birds were more influenced by the behavior of other males, and adults were more likely to learn from roost mates, compared to juveniles. Juveniles were also more conformist, preferring the most popular almond color.

The birds adopted several different strategies to remove the almond shells, and the researchers found that close associates were more likely to use the same method. Almond-cracking techniques were also more similar between neighboring roosts.

What this reveals about urban survival

The study provides the first experimental evidence that wild parrots learn about novel foods from their social group. Social learning enabled this knowledge to spread rapidly through the community. It also influenced the birds' shell-opening behavior, leading to cultural differences at relatively small scales.

The authors say that social learning is an important ability that allows animals to quickly gain new dietary knowledge, which may help them adapt to human-altered habitats.

The authors add, "Our study demonstrates how social learning allows urban cockatoos to rapidly adopt new food sources—which may be part of the secret to their successful persistence in urban areas."

"The transmission of knowledge about novel food items was almost exclusively predicted by the social network of cockatoos."

"Juveniles were more conservative in their food choices than adults, preferring to copy the majority. This mirrors findings in humans, where young children tend to be more conservative."

More information: Penndorf J, et al. Wild parrots exhibit age-dependent conformity when learning about novel food, *PLOS Biology* (2026). DOI: 10.1371/journal.pbio.3003741

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